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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/001,511

10/31/2001

Sanford J. Morganstein

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11/16/2005

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EXAMINER

HESS, DANIEL A

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/001,511

Applicant(s)

MORGANSTEIN, SANFORD J.

Examiner

Daniel A. Hess

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7-29,33-46,48,49,53-57,59,62-67 and 70-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-29,33-46,48,49,53-57,59,62-67 and 70-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

This action is in response to 9/13/2005 response and arguments by the applicant, which have been placed in the file of record. See notably the 'Response to Arguments' section, below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 8-11, 14-16, 18-25, 26-27, 34-37, 40-46, 48, 49, 53, 56-57, 59, 62, 65, 66, 71 and 74-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Challener et al. (US 6,081,793) in view of the publication, "The Caltech/MIT Voting Technology Project," hereinafter **VTP**.

Re claims 1, 27, 48, 49: [Note: While Challener is still used as a primary reference, different particular teachings are employed, based on a particular definition of 'digital signature' supplied by the applicant in the 9/13/2005 action.]

We take the definition that a digital signature is 'a method for proving the authorship of an electronic document.' Based on the applicant's own evidence, on page 2 of the declaration of 9/13/05, signing with a private key is one way of providing an electronic key and proving authorship. See figure 9A: VO signifies signing with a voter's private key, i.e. a voter providing

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a digital signature. See figure 9B: an election key can be considered to be the full data packet shown, including the signed ballot request and the voter id. There is implicitly an electronic key generator, namely the user's computer from which this request originates. One or more computing devices, namely an authenticator (figure 9B) will retrieve the digital signature from the key and perform validation. This ballot request must inherently be successfully decrypted, i.e. the signature must be validated, prior to the presenting of ballot questions to the voter.

Challener fails to show that the ballots are generated in tangible form. Rather, in Challener, an encoded electronic ballot is created. Also, Challener fails to teach that the election key stores, on itself customized ballot questions.

VTP teaches (pages 59-64; especially page 60, left hand column under the heading "Frog Initialization") customized questions, i.e. "which races and candidates are to be presented to the voter." Second, a tangible ballot will exist following the process: see page 62, first column: a tangible audit trail is described, where physical objects are stored in a box.

In view of VTP's teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known paper ballot as taught by VTP in addition to the electronic ballot of Challener because the tangible record can act as a backup and help infuse population with a high degree of confidence in the system.

Note that VTP's tangible ballot may be an electronic data-bearing record such as a smart card, and as such, it can carry the same kinds of information as Challener et al.'s electronic ballot. As far as the tangible ballot being human-readable, VTP teaches (page 60, right-hand column) that the tangible ballot could include a paper ballot.

Re claim 5: Based on information retrieved from the key, identification may determined, and the server selects a ballot id for the particular voter. The ballot id is associated with a particular precinct (column 3, lines 19-21). It is well-known in the art that different precincts have different questions, thus questions are customized for the voter.

Re claims 7 and 33:

As VTP teaches (page 62, 2nd column) paper frogs can contain a 2D barcode.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the old and well-known bar code storage means for the chip data storage means on the card of Challenger because bar codes are cheaper to manufacture than chip cards.

[Although the Examiner is not changing this original rejection, the examiner further notes that VTP's paper ballot is bar-coded (figures 1 and 4).]

Re claims 8, 34: Clearly the computing device used by the voter must create a voting record. See, for example, figure 9D.

Re claims 9 and 15: A voting record/ballot is linked to a particular computing device through an id: the 'public key of the journal server' (column 8, line 15).

Re claims 10, 16 and 36: This digital signature particular to the voter's precinct is the ballot id referred to re claim 1 above.

Re claims 11, 37 and 53: There is (column 4, line 39) a touch screen.

Re claims 14 and 40: As Challenger shows (column 7, lines 40-55) the pin number stored on the key and a voter-entered pin number are compared.

Re claim 17: A voter id (column 8, line 28) is present (i.e. as opposed to voter's name etc.).

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Re claims 18, 41, 43 and 56: The determination of a properly filled-out ballot is understood and implicit in the term ‘completes the ballot’ (column 8, lines 9-12). The phrase ‘encrypts the completed ballot’ implies that the user must *complete* the ballot first.

Re claim 19: The system involves ‘using the voter’s PC’ (column 8, line 12). It is understood in the art that a PDA is a scaled down version of a PC for most operations that aren’t computationally or graphically out of range of a PDA.

Re claims 20-24, 42, 44 and 45: The Challenger invention includes ‘all the functions associated with the tabulation of the votes’ (column 10, lines 57-60). This would include auditing specific questions. Also, re 21-24 particularly, see (column 10, lines 50-68) the intereactions of the results server and the journal server.

Re claims 25 and 66: VTP teaches (page 63, left column) a system within the electronic voting sequence permitting the voter to verify selections.

In view of VTP’s teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known selection verification means as taught by VTP into the teachings of Challenger because a voter could well make a mistake.

Re claims 26, 46 and 57: A keyboard 16 is available (column 4, lines 27-29). In keeping with election laws dictating the write-in option, it is implied that the system would have to make available this option.

Re claim 35: VTP teaches (page 61, under the heading “vote recording”) that “each vote casting machine displays the number of votes it has signed.”

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In view of VTP's teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known tabulation of votes within memory at each voting station as taught by VTP in the teachings of Challenger because such tabulation can be useful for such things as exit polling, and further facilitates the final counting of all votes, since a subset of all votes will be counted.

Re claims 59, 65, 67 and 74: As VTP teaches (page 62, 2nd column) paper "frogs" can contain a 2D barcode.

In view of VTP's teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known machine readable barcode means as taught by VTP on paper ballots of Challenger as modified by VTP because otherwise tallying of paper ballots is laborious.

Re claims 62 and 71: Challenger has (column 4, lines 39-40) a touch-screen option.

Re claim 70: VTP shows results tabulated in the voter terminal and again in the urn, for redundancy, as discussed re claim 1 above.

Re claims 75-78: VTP discusses the use of paper 'frogs' which include human readable/printed material (page 62).

In view of VTP's teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known human readable portions of an electronic ballot in order to facilitate human auditing.

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Claims 2 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Challenger as modified by VTP as applied to claim 1 above, and further in view of Walter et al. (US 5,992,570). The teachings of Challenger as modified by VTP have been discussed above.

Challenger fails to show that the voter enters a signature that is stored in electronic form.

As Walter shows (column 3, lines 64-67; figure 1, 26) a signature pad used for supermarket credit / debit credit validation obtains a digital signature.

In view of supermarket credit card systems, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known digital signature validation system taught by supermarket credit card system in the teachings of Challenger because this makes the voting process more secure by adding an additional security measure to fight fraud.

Claims 3 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Challenger as modified by VTP as applied to claim 1 above, and further in view of Drexler et al. (US 5,412,727). The teachings of Challenger as modified by VTP have been discussed above.

Challenger fails to show verification of voters by biometric means.

Drexler shows (column 2, lines 29-51) verification of voters using biometric means.

In view of Drexler's teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known biometric verification of voters as taught by Drexler in the teaching of Challenger because this added security measure can help to inhibit voter fraud and is not easily mimicked.

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Claims 12, 13, 38, 39, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Challenger as modified by VTP as applied to claim 1 above, and further in view of McClure et al. (US 6,250,548). The teachings of Challenger as modified by VTP have been discussed above.

The use of instructions, in text on the screen is implied, the minimal instructions being which instructions will cast a vote for which candidate. Any screen that shows such information can be called a help screen.

Challenger fails to either language selection or text-to-speech capability.

McClure shows (see excerpt, 2nd page) language selection in electronic voting. McClure further shows (abstract, line 25) text-to-speech assistance of voters.

In view of McClure's teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known language selection or text-to-speech assistance as taught by McClure in the help/information text or screens of Challenger because this allows more universal access, toward the democratic goal of maximizing voter participation.

Claims 63, 64, 72 and 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Challenger as modified by VTP and McClure as applied to claim 13 above, and further in view of Willard (US 5,821,508). Challenger as modified by VTP and McClure have been discussed above.

Re claims 63 and 72: Challenger as modified by VTP and McClure fails to show determining the intent of the voter via time-proximity.

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Willard teaches (abstract) “a button on a hand-held device” in conjunction with audio selections, which suggests a time-proximity component is needed, since there is only one source of input.

In view of Willard, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known time-proximity-based voting with a single button because a blind person might have trouble with many buttons.

Re claim 64 and 73: Challenger shows (column 4, lines 35-40) the option of using the mouse as a backup system, in addition to a touch screen.

Challenger as modified by VTP and McClure fails to show the reviewing option.

Willard teaches (column 9, lines 7-30) that a user receives auditory reviewing instructions.

In view of Willard’s teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known auditory reviewing instructions as taught by Willard in the teachings of Challenger as modified by VTP and McClure because this may help prevent a blind person from making voting errors.

Response to Arguments

Applicant's arguments filed 9/13/2005 have been fully considered but they are not persuasive. In particular, the applicant argues that no digital signature is present, at least in the sense that the applicant is using the term. The examiner observes that a broad interpretation of ‘digital signature’ was possible, and that in view of the declaration of 9/13/05 a narrower

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definition can be taken, namely that a digital signature is ‘a method for proving the authorship of an electronic document.’ An excerpt from the 9/13/05 declaration is below:

4. These points are made clear in the glossary in the book, “the Code Book” by Simon Singh, Ph. D.; published by Anchor Books, 1999 (excerpts attached as Appendix A). Dr. Singh defines “Cryptology” as “the science of secret writing in all its forms, covering both cryptography and cryptanalysis” (emphasis added).¹ Dr. Singh defines “Digital Signature” as “a method for proving the authorship of an electronic document” (emphasis added). He goes on to state that a digital signature often “is generated by the author encrypting the document with his or her private key.” Thus, encryption (concealing a message) and digital signing (proving authenticity) may use similar tools based on the science of cryptography for very different purposes.

Here, it is clear that signing with a private key is one way of providing an electronic key and proving authorship.

There are at least two separate instances in Challenger where a digital signature is used, and then the digital signature is checked prior to voting, such that the ballot questions are presented to the voter only if the signature has been validated and authenticated.

See figure 9A: VO indicates encryption using the voter’s private key. AO indicates encryption using the authenticator’s private key. Using the above definition provided by the applicant, both of these constitute authentication/validation using a digital signature.

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A first instance of signing then is seen in figure 9B, where a request for a ballot is signed using a voter's private key. Here, the election key is the entire request, which includes the signature.

This ballot request must inherently be successfully decrypted, i.e. the signature must be validated, prior to the presenting of ballot questions to the voter.

A second instance of signing is seen in figure 9C, where the ballot itself is encrypted with the authentication server's private key, which is a signature. This ballot request must inherently be successfully decrypted, i.e. the signature must be validated, prior to the presenting of ballot questions to the voter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel A. Hess whose telephone number is (571) 272-2392. The examiner can normally be reached on 8:00 AM - 5:00 PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DH
11/1/05

DANIEL STCYR
PRIMARY EXAMINER

